A. TITLE OF THE INVENTION

ICE CREAMS COMPRISING EMULSIFIED LIQUID SHORTENING COMPOSITIONS COMPRISING DIETARY FIBER GEL, WATER AND LIPID.

B. CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable

C. STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

The present invention does not involve any form of federally sponsored research or development.

D. BACKGROUND OF THE INVENTION

The present invention relates to ice creams comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. Recent media attention to the global problem of obesity demonstrates a need for greater availability of foods with low caloric and fat content. This is especially true for foods that typically have high fat and caloric content, such as ice creams.

Ice creams typically comprise some fat. Other ingredients can vary according to the type of ice cream and the recipe followed, but typically, ice creams are high in both fat and caloric content. It is intended that the generic term ice cream includes ice cream products such as ice cream bars, ice cream sandwiches, ice cream cakes, as well as ice milk, ice milk products, frozen yogurt, frozen yogurt products, and the like. As used in this document, the term "ice cream" is defined to include ice cream products such as ice cream bars, ice cream sandwiches, ice cream cakes, as well as ice milk, ice milk products, frozen yogurt, frozen yogurt products, and the like.

In recent years, some companies have begun to offer reduced fat ice creams. This variety of ice cream, however, often fails to retain the desirable taste and texture of ice creams comprising higher fat contents.

The absence of a means to reduce the fat and caloric content of ice creams while still producing a desirably flavored and textured ice cream presents an unmet need in today's food industry.

E. BRIEF SUMMARY OF THE INVENTION

It is an object of the present invention to provide a unique composition of matter embodied by low-calorie and low-fat ice creams. This reduction in caloric and fat content answers an unmet need in the food industry to provide the consuming public with a healthier, higher fiber alternative to traditional types of ice creams that typically are inherently fattening. It is another object of the present invention to provide ice creams that have been fortified with insoluble fiber and other functional foods.

Dietary fiber gels for calorie reduced foods hold the key to meeting this need. Dietary fiber gels for calorie reduced foods are fully described in U.S. Patent number 5,766,662 (the '662 patent). These dietary fiber gels comprise insoluble dietary fibers consisting of morphologically disintegrated cellular structures, and are characterized by their ability to retain large amounts of water. Additionally, these dietary fiber gels are characterized by their high viscosity at low solid levels. Other insoluble fibers derived from cereals, grains and legumes consist of morphologically in tact cellular structures, and thus impart a gritty texture to the foods in which they are contained. The dietary fiber gels disclosed in the '662 patent, however, consist of morphologically disintegrated cellular structures and thus impart a smoother texture than other insoluble fiber formulations.

More specifically, the present invention utilizes emulsified mixtures of the dietary fiber gels disclosed in the '662 patent, the emulsified mixtures further comprising, at a minimum, water and lipid. These emulsified mixtures are fully described in and are the subject of United States patent application number 10/669731 filed 09/24/2003. These emulsified mixtures, or "emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid", can further comprise functional foods such as high omega three and omega six oils and pure omega three and omega six

fatty acids, medium chain triglyceride, beta carotene, calcium estearate, vitamin E, bioflavonoids, fagopyritrol, polyphenolic antioxidants of vegetable origin, lycopene, luteine and soluble fiber, for example Beta-Glucan derived from yeast, and other soluble fibers derived from grain, flax seed, and other vegetable and fruit fiber sources, and any combination thereof. Hence, in addition to reducing fat and caloric content of ice creams, further health benefits can be achieved by replacing a portion of fat with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid.

According to the present invention, fat and caloric content can be reduced by the replacement of the fat normally found in ice creams with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. This replacement of fat does not adversely affect either the taste or texture of the ice creams. The result is that fat and caloric content of ice creams can be manipulated with minimal effect on taste and texture, and as stated above, additional health benefits can be achieved through consumption of ice creams comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid when functional foods are included in the formulations.

Further objects, advantages and features of the present invention will present themselves in the following detailed description.

F. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

This invention is directed to ice creams comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid. According to the present invention, fat and caloric content can be reduced by the replacement of the fat normally found in ice creams with emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid (hereinafter "emulsified liquid shortening"). This replacement of fat does not adversely affect either the taste or texture of the ice creams. The result is that fat and caloric content of ice creams can be manipulated with minimal effect on taste and texture.

Different categories of ice cream are available to consumers, including ice cream, ice milk, and frozen yogurt. Ice creams can be formulated such that the ice cream comprises 0.1 percent to

0.45 percent dietary fiber gel solids by replacing an appropriate amount, that is, an amount prorated to deliver this range of dietary fiber gel solids, of fat, including oil and liquid shortening, with an essentially identical amount of emulsified liquid shortening. Ice milk can be formulated such that the ice milk comprises 0.2 percent to 2.5 percent dietary fiber gel solids by replacing an appropriate amount, that is, an amount prorated to deliver this range of dietary fiber gel solids, of fat, including oil and liquid shortening, with an essentially identical amount of emulsified liquid shortening. Frozen yogurt can be formulated such that the frozen yogurt comprises 0.1 percent to 0.75 percent dietary fiber gel solids by replacing an appropriate amount, that is, an amount prorated to deliver this range of dietary fiber gel solids, of fat, including oil and liquid shortening, with an essentially identical amount of emulsified liquid shortening

The result is that fat and caloric content of ice creams can be manipulated with minimal effect on taste and texture, and as stated above, additional health benefits can be achieved through consumption of ice creams comprising emulsified liquid shortening compositions comprising dietary fiber gel, water and lipid when functional foods are included in the formulations.